Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claims 1-40 (canceled)

41 (currently amended): A method for measuring a physiological parameter, comprising:

measuring a plurality of signals, wherein each of said signals comprises a source component corresponding to said physiological parameter and an interference component;

processing said plurality of signals to obtain a plurality of principal components;

processing said plurality of principal components to obtain a plurality of independent components, wherein a matrix of said plurality of signals corresponds to a matrix product of a matrix of said plurality of independent components and a matrix of mixing coefficients; and

extracting a first measure of said physiological parameter corresponding to said source component from one of said plurality of independent components, wherein said plurality of signals corresponds to sensed optical energies from a plurality of wavelengths,

and wherein said processing said plurality of principal components comprises maximizing a function of ~~the higher-order cumulants~~ a third-order cumulant of ~~a mixture of~~ said plurality of signals, thus separating said source component from said interference component, and

~~wherein said higher-order cumulant is a third-order cumulant of said plurality of signals~~

obtaining a ratio of mixing coefficients from said matrix of mixing coefficients, wherein said ratio corresponds to a ratio of modulation ratios of red to infrared signals, wherein said plurality of signals comprise modulated optical signals in the red and infrared ranges.

42 (previously presented): The method of claim 41 wherein said physiological parameter is a function of an oxygen saturation.

43 (previously presented): The method of claim 41 wherein said processing said plurality of signals further comprises

obtaining a time derivative of the sensed optical energies from a plurality of wavelengths.

44 (previously presented): The method of claim 41 wherein said interference component comprises signal components caused by motion, respiratory artifact, ambient light, optical scattering and other interference between a tissue location being sensed and a sensor.

45 (previously presented): The method of claim 41 wherein said processing said plurality of signals further comprises decorrelating said plurality of signals by minimizing a cross-correlation of said plurality of signals, to obtain a plurality of decorrelated signals; and

normalizing said plurality of decorrelated signals to obtain the plurality of principal components.

46 (previously presented): The method of claim 41 wherein said processing said plurality of signals comprises decorrelating said plurality of signals by singular-value decomposition of said plurality of signals, to obtain the plurality of principal components.

47 (previously presented): The method of claim 41 wherein said processing said plurality of signals comprises decorrelating said plurality of signals by multiplying said plurality of signals by the inverse square root of the covariance matrix of said plurality of signals to obtain the plurality of principal components.

48 (canceled)

49 (previously presented): The method of claim 48 further comprising extracting a second measure of said physiological parameter from said ratio, wherein said second measure of said physiological parameter corresponds to an oxygen saturation.

50 (currently amended): A pulse oximeter, comprising:

a sensor configured for measuring a plurality of signals, wherein each of said signals comprises a source component corresponding to said physiological parameter and an interference component;

a computer useable medium having computer readable code embodied therein for measuring a physiological parameter, said computer readable code configured to execute functions comprising:

processing said plurality of signals to obtain a plurality of principal components;

processing said plurality of principle components to obtain a plurality of independent components, wherein a matrix of said plurality of signals corresponds to a matrix product of a matrix of said plurality of independent components and a matrix of mixing coefficients;

extracting a first measure of said physiological parameter corresponding to said source component from one of said plurality of independent components, wherein said plurality of signals corresponds to sensed optical energies from a plurality of wavelengths;

and wherein said processing said plurality of principal components comprises

maximizing a function of ~~the higher-order cumulants~~ a third-order cumulant of ~~a mixture of~~ said plurality of signals, thus separating said source component from said interference component; and

~~wherein said higher-order order cumulant is a third-order cumulant of said plurality of signals~~

obtaining a ratio of mixing coefficients from said matrix of mixing coefficients, wherein said ratio corresponds to a ratio of modulation ratios of red to infrared signals.

51 (previously presented): The pulse oximeter of claim 50 wherein said physiological parameter is an oxygen saturation.

52 (previously presented): The pulse oximeter of claim 50 wherein said plurality of signals corresponds to the time derivative of the sensed optical energies from a plurality of wavelengths.

53 (previously presented): The pulse oximeter of claim 50 wherein said interference component comprises signal components caused by motion, respiratory artifact, ambient light, optical scattering and other interference between a tissue location being sense and a sensor.

54 (previously presented): The pulse oximeter of claim 50 wherein said processing said plurality of signals comprises decorrelating said plurality of signals by minimizing a cross-correlation of said plurality of signals, to obtain a plurality of decorrelated signals; and

normalizing said plurality of decorrelated signals to obtain the plurality of principal components.

55 (previously presented): The pulse oximeter of claim 50 wherein said processing said plurality of signals comprises decorrelating said plurality of signals by singular-value decomposition of said plurality of signals, to obtain the plurality of principal components.

56 (previously presented): The pulse oximeter of claim 50 wherein said processing said plurality of signals comprises decorrelating said plurality of signals by multiplying said plurality of signals by the inverse square root of the covariance matrix of said plurality of signals to obtain the plurality of principal components.

57 (previously presented): The pulse oximeter of claim 50 wherein said processing said plurality of principal components comprises successive transformations to simultaneously minimize higher-order correlations among the outputs of the transformations.

58 (previously presented): The pulse oximeter of claim 50 wherein said processing said plurality of principal components comprises successive rotations to minimize estimated mutual information among outputs of the rotations.

59 (canceled)

60 (previously presented): The pulse oximeter of claim 59 further comprising extracting a second measure of said physiological parameter from said ratio, wherein said second measure of said physiological parameter corresponds to an oxygen saturation.

61 (previously presented): The pulse oximeter of claim 50 wherein said first measure of a physiological parameter corresponds to a pulse rate.